

with a mighty chain the myriads of leagues of its tremendous orbit! He does not hesitate,—he trembles, it may be, as thus the key of the unknown abyss is placed in his small hand to open,—but he does not hesitate—there is no uncertainty—the act is accomplished. This is Science. K.

ON THE INFLUENCE OF CUSTOM, TASTE, AND MATERIALS ON PRACTICE, AND HOW INNOVATIONS FROM SUCH SOURCES SHOULD BE MET.*

THE spirit of movement and change, the desire never to rest satisfied with things as they are, the restless efforts to gain, to grasp, to gather together and use, which mark the mind of man—permeate especially, along with those other matters that engross his attention, that art from which he derives so much to delight his eye, and which adds so much to his comfort—Architecture; and that because it is, more than any other fine art, so intimately mixed up with his wants and daily life.

And thus it is that the architect has a two-fold tide continually rolling in upon him, and needs to keep his attention awake, his head clear, his hand ready; for there is danger that he may sink, weighed down by the shackles of prejudice, or be carried away by one or other of those billows ever swelling before him: there is danger that he may yield to the force of the merely useful, and so be cast away on the rock of mere utilitarianism; or there is danger that the charms of mere æsthetic thought may woo him to quicksands which want the necessary foundation of the useful, and where he may stick fast, unheeded by his fellow-men, because unrequired by them. It is the office of the merely necessary and physical wants to be the vehicles by which the more elevating and mental tendencies are brought out, and the right office of art is, to clothe the every-day means by which man's commonest wants are satisfied with its own beauties; so that the better, the poetical, the happy, and pure feelings of his mind are called into action, and by constant exercise are improved and perfected, to the vanquishing of evil and sensual leanings, and the imparting of many fresh delights and before unknown sources of pleasure in his soul.

The architect, if he is wise, will beware of the dangers to which we have alluded: he will rise with the immediate occasion before him, not to be mastered by it, but to direct and govern it,—willing to receive, ready to adopt, but determined to direct,—neither shutting his ears to popular calls, nor blinding his eyes by popular fashions.

With these remarks, then, we will approach our subject a little nearer, and proceed to consider the tendencies and demands by which the artist is influenced in the present day.

He has the hue and cry for new styles, new features and effects ringing in his ears on the one hand, and on the other he is deafened with the noise of the workers in materials, hitherto only used subordinatedly, who extol their own inventions on more practical grounds only, amid the hiss of the steam and the incessant rattle of the engine; and these latter are too apt to act indiscreetly, abusing materials excellent and useful to all sorts of purposes—urging on, instead of stemming, the popular tide—ever running to extremes; so that bearing of iron and glass well used and fitly for one purpose, we presently hear of warehouses and railway stations to be so constructed, and may be prepared to see imitative genius suggesting some much more extraordinary application of this combination.

The growing into unexpected use of some hidden and unused medium should be matter of great interest to the architect—of congratulation and delight if he views it aright,—and should be welcomed by him as such: the difficulties found in treating old materials in a new way vanish in this case,—and great difficulties assuredly they are: he is brought up in old modes of thinking: he has old tools and old materials put into his hands: he has old models to study, and old lessons are imprinted on his mind: what wonder, then, if he finds it diffi-

cult to break away from old paths, to get rid of old impressions, and to mirror back new views from old reflections.

Perhaps the greatest architectural feature of the age is the growing introduction of cast metal into all sorts of buildings, and for all sorts of purposes. Now if the metal has within itself the elements of successful utility, its progress will not be arrested: a cold reception may delay its usurpation, and maintain against it an unequal combat on the part of its antagonists, but they must succumb at last; and might it not be better if the architect, foreseeing the end, would apply his mind to the present need, and lend his aid to place the new feature at once on a loftier elevation—detracting nothing from the past, but giving the thing of this present its full weight and singularity—marking out his own age—welling off his own epoch from those previous—setting up a great landmark, an eternal pyramid of fame?

In the architecture of past ages, some signs of the passage of one material into another may often be traced: wooden framing and construction leave their impress on succeeding stone, and evidence of the usages of one age becomes transferred to another in which the latter no longer exist; so that the intense absurdity is again and again perpetrated of erecting buildings on principles contrived for one part of the world in some other part totally dissimilar: thus, Gothic churches are built in India, and Egyptian buildings in Britain; but surely there is for us a grand opportunity of avoiding such errors: the architect working in Rome must almost necessarily direct himself of all idea of stone and wood; and so, he may mark the change, as instant and rapid and as wonderful as that which took place when the Early English, or first pointed, reared its sweet beauties in the land—uncontaminated by the rudeness of the previous age—untaught, except remotely—pure and fresh as the early morn. A great opportunity this, a wonderful advantage, if the premises we have assumed are at all correct.

Practically, however, we must allow that there is much difficulty to embody any such idea: we have learned to admire mass combined with lightness—the easy flow of curved lines—the manifest beauties of scientific construction—pleasing the eye, and carrying conviction of a thoughtful and masterly mind: we look for evidence of strength, and expect to find it in solid piers and massive buttments: we like to see a building alive with purpose, each portion taking up its right place in the whole—all subservient one to the other, mutually giving and receiving support and strength—receiving and conferring grace and beauty—separately, perhaps, little or nothing in effect, but, together, either by mutual help or contention of power, making a perfect whole.

In turning, however, to iron, we are, perhaps, indisposed to employ it, because, although it has, doubtless, some of those excellencies properly treated, yet its more proper beauties are worthy of a different order: solidity and breadth it has not, for it is rigid, and of great strength in a small compass, and its power must not be wasted: the beautiful effects of thrust and counter-thrust, and security maintained in the midst of contending forces, it has hardly at all; for it is in its nature firm and unyielding, and this intrinsic independence of each part of the rest has led to its being treated in parts only, and rarely or never as a whole—a series of panels and posts—a range of weighty beams, that form unpleasant combinations, because the effect of mind is wanting—there is no thought written on them—it is the strong metal, not the mind of man you see.

But a wall of iron would look thin and miserable? Yes, indeed, unless you will let it look like itself. Imagine a stone cathedral electro-plated with iron: what a grim, gaunt, oppressive, weighty, tremendously ugly-looking monster it would be! or, on the other hand, paint and sand your iron support, and draw joints, making it look like stone: what a dangerous, frightful aspect it would have! nothing would tempt the spectator near

it, unless he knew the mystery. The architect must make the spectator understand the nature of the power he is dealing with: he must let its strength be seen: he must let it discover itself, not in its native grimaces, but with its sternness purified into serene power, and the might of its brute vigour tamed and led by his art influence.

Suppose, for example, you were required to design a church,—to put what some would call a very gross case,—the main feature of (not the entire) construction to be iron, as stone usually is now: suppose a railway king, whose dominion grew out of iron, directed you to do this,—because he loved the metal, first, and, secondly, because he might be able to add that the cost was only half what it might otherwise be: would you laugh at him, reason with him, or quietly give him up as past mending? The circumstances would authorize you to do none of these: no, you would act more worthily of your art, which should be ever slow to yield to difficulties, if you applied your mind to the idea, and strove to carry out your employer's notion.

True, the mere thought of such a case to the sticklers for imitation of the past will be beyond endurance: indeed, the strict precedent-men are out of court altogether, and have no resting-place for the soles of their feet. But it may happen that more liberal thinkers would feel a natural instinctive repugnance to any such idea. What is to become of old associations, hallowed recollections, the poetry of the past? Shall we forsake those forms, garlanded by poets with wreaths of song—by art clothed with beauty—in which the religious man believes he can trace the influence of the religion he loves, and in which the scientific man sees the exemplification of those technic excellences which fill him with pride and call forth his approval and admiration?

Estimate all this at its utmost value—give it its just weight in the scale: and, after all, it is not of such immense importance as may seem at first: the immortal mind of man is still the same: the poet is no less so, if from the gorgeous city he be transported to an island of rock and desert; nor is the heart of the religious man changed because the forms at present around him may vanish: we may learn from the past, that outward fashions do not rule the higher inspirations.

But to return. The architect having his instructions, how shall he carry them out? First, as to plan,—his mind may advert directly to what he has seen and practised a hundred times—the old arrangement of nave and aisles: well, let him take it; not because it has been used before, but because it is a good plan and a reasonable, and perchance will suit him as well as any other: moreover, it is well proportioned, and the divisions of the building always fall in together pleasantly, and with harmony. But the thought of piers and arches to divide his nave from his aisles occurs to him: no; so far as the arches, at least, he rejects that at once,—he sees that here he depends not on the inert strength of mass for his support; that the arch, the principles of which are the tendency of wedge-like members to bear towards a common centre, can have no place under the circumstances with which he has to deal: compared with stone, he has a more concentrated power, and a more resisting: acting in the place of piers, he may cluster supports of hollow open work, and these he may design in any art form he pleases, so long as it is not one that belongs and exists veritably only, because constructively, in some other medium (there he will reject the close apparently solid, though hollow, imitative column): while above he may have his transverse beams pierced, and in what pattern he may choose.

But how can he manage his walls? Perhaps he can only think of a framing filled in with glass, which he has seen at some conservatory; or of thin plates bolted together at the flanges, like a Californian house, built for ready use and quick sale; or a cast-iron light-house; and all these he sees are wanting in beauty,—very useful, perhaps, but wholly inartistic. He might determine that, to equalize temperature, he should have a double chamber

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